CANADA

NATIONAL ENERGY BOARD
REASONS FOR DECISION

In the Matter of the Applications under
Part VI of the National Energy Board Act

of

Pan-Alberta Gas Ltd.
and
Consolidated Natural Gas Limited

April 1980

Canada

NATIONAL ENERGY BOARD

REASONS FOR DECISION

In the Matter of the Applications under Part VI
of the National Energy Board Act

of

Pan-Alberta Gas Ltd.
and
Consolidated Natural Gas Limited

April 1980

Ce rapport est publié
dans les deux langues
officielles

NATIONAL ENERGY BOARD

IN THE MATTER OF the National Energy Board Act and the Regulations made thereunder;

AND IN THE MATTER OF applications made by Pan-Alberta Gas Ltd. for licences under Part VI of the National Energy Board Act for the exportation of natural gas to the United States of America, filed with the Board under File No. 1537-P23-4.

AND IN THE MATTER OF an application made by Consolidated Natural Gas Limited under section 17(a) of the National Energy Board Act for an amendment to its Licence No. GL-61, filed with the Board under File No. 1537-C29-1.

Heard in Ottawa, Ontario on 18, 19, 20, 21, and 24 March 1980.

Before:

R.F. Brooks	Presiding Member
L.M. Thur	Member
J.R. Jenkins	Member

Appearances:

R.J. Gibbs, Q.C.) C.W. Sanderson) S.G. Trueman)	Pan-Alberta Gas Ltd.
G.D. Nichols) John Phillips)	Consolidated Natural Gas Limited
John Courtright)	Canadian Petroleum Association
A.E. Potter)	Independent Petroleum Association of Canada
J.R. Smith, Q.C.)	Alberta and Southern Gas Co. Ltd.
H.R. Ward) S.A. Thompson)	Columbia Gas Development of Canada Ltd.

J.H. Farrell	)	Niagara Gas Transmission Limited
W. Mirosh	)	ProGas Limited
S. Carscallen	)	Sulpetro Limited
L.H. Pilon	)	TransCanada PipeLines Limited
A.A. Arneson	)	Westcoast Transmission Company Limited
K.F. Keeler	)	Amoco Canada Petroleum Company Ltd.
W.S. Chan	)	Canadian Superior Oil Ltd.
R.J. Gibbs, Q.C.	)	Chieftain Development Co. Ltd.
	)	Quasar Petroleum Ltd.
	)	Signalta Resources Limited
G.H. Robichaud	)	Dome Petroleum Limited
L.D. Horner	)	Gulf Canada Resources Inc.
Edward Ryan	)	Imperial Oil Limited
Marie Zukowski	)	Norcen Energy Resources Limited
A.R. O'Brien	)	British Columbia Hydro and Power Authority
J.H. Farrell	)	The Consumers' Gas Company
Michael Peterson	)	Gaz Métropolitain, inc.
Andrew Mudryj	)	Union Gas Limited
F.R. Foran	)	The Alberta Gas Trunk Line Company Limited
John Hopwood, Q.C.	)	
W.O. Crain, Jr.	)	ANB Gas Company
	)	United Gas Pipe Line Company
H.A. Fergusson	)	Dow Chemical of Canada, Limited
R.J. Gibbs, Q.C.	)	Foothills Pipe Lines (Yukon) Ltd.

Ian A. Blue	)	Michigan Wisconsin Pipe Line Company
H. Soloway, Q.C. W.T. Houston	))	Midwestern Gas Transmission Company
J.H. Smellie	))	Natural Gas Pipe Line Company of America
D.O. Sabey, Q.C.	))	Northern Border Pipeline Company
E.B. McDougall	)	Northwest Alaskan Pipeline Company
H. Soloway, Q.C.	))	Tennessee Gas Pipeline Company Division of Tenneco Inc.
F. Bregha	)	Canadian Arctic Resources Committee
B.F. Willson	))	Committee for an Independent Canada
David Brooks	)	Energy Probe
K.C. Mackenzie M. Moseley	)	The Attorney General of the Province of British Columbia
J. Johnson	))	Ministry of Energy for the Province of Ontario
D. Houde	)	Le Procureur Général du Québec
K.J. MacDonald	)	National Energy Board

TABLE OF CONTENTS

ABBREVIATIONS, TERMS AND DEFINITIONS

AERCB	- Alberta Energy Resources Conservation Board
AGTL	- Alberta Gas Trunk Line Company Limited
Alberta and Southern	- Alberta and Southern Gas Co. Ltd.
Amoco	- Amoco Canada Petroleum Company Ltd.
ANB	- ANB Gas Company
ANG	- Alberta Natural Gas Company Ltd.
ANGTS	- Alaskan Natural Gas Transportation System
B.C. Hydro	- British Columbia Hydro and Power Authority
Canadian Superior	- Canadian Superior Oil Ltd.
Chieftain	- Chieftain Development Co. Ltd.
Columbia	- Columbia Gas Development of Canada Ltd.
Consolidated	- Consolidated Natural Gas Limited
Consumers'	- The Consumers' Gas Company
Dempster Lateral	- The proposed pipeline lateral of Foothills (Yukon) to transport Canadian natural gas from the Mackenzie Delta along a route generally parallel to the Dempster Highway, connecting with the Foothills (Yukon) pipeline near Whitehorse.
Dome	- Dome Petroleum Limited
Dow	- Dow Chemical of Canada, Limited
Eastern Leg	- The prebuilt facilities of Foothills (Yukon) comprising a 637 km express line from James River, Alberta to Monchy, Saskatchewan.
El Paso	- El Paso Natural Gas Company
EJ	- exajoule

Extended - period exports	-	Under the Board's procedure to determine surplus, the portion of any export authorization extending beyond the period of highly assured protection (i.e. - does not meet the Current Deliverability Test) will be conditional upon sufficient deliverability being developed to meet expected Canadian requirements and authorized exports in each year of the extended term of the licence. Pan-Alberta referred to such authorizations as "conditional" exports.
Foothills, or Foothills (Yukon)	-	Foothills Pipe Lines (Yukon) Ltd.
Foothills (Alta.)	-	Foothills Pipe Lines (Alta.) Ltd.
Foothills (Sask.)	-	Foothills Pipe Lines (Sask.) Ltd.
Foothills (South B.C.)	-	Foothills Pipe Lines (South B.C.) Ltd.
Gaz Métropolitain	-	Gaz Métropolitain, inc.
Gulf	-	Gulf Canada Resources Inc.
Imperial	-	Imperial Oil Limited
Licence Phase Hearing	-	The public hearing which commenced on 10 July 1979 pursuant to Order GH-4-79 wherein the Board considered 11 applications to export natural gas.
Michigan-Wisconsin	-	Michigan Wisconsin Pipe Line Company
Midwestern	-	Midwestern Gas Transmission Company
Natural Gas Pipeline	-	Natural Gas Pipe Line Company of America
Niagara	-	Niagara Gas Transmission Limited
Northern Border	-	Northern Border Pipeline Company
Northern Natural	-	Northern Natural Gas Company
Northwest Alaskan	-	Northwest Alaskan Pipeline Company
Northwest Pipeline	-	Northwest Pipeline Corporation
November 1979 Report	-	The Board's Reasons for Decision arising from the Licence Phase Hearing

Pacific Interstate	-	Pacific Interstate Transmission Company
Pan-Alberta	-	Pan-Alberta Gas Ltd.
Panhandle	-	Panhandle Eastern Pipe Line Company
PGT	-	Pacific Gas Transmission Company
PJ	-	petajoule
Prebuilt Facilities of Foothills	-	Those southern portions of the Foothills (Yukon) system to be constructed in advance of construction of the whole ANGTS
ProGas	-	ProGas Limited
Quasar	-	Quasar Petroleum Ltd.
Signalta	-	Signalta Resources Limited
SoCal	-	The Southern California Gas Company
Sulpetro	-	Sulpetro Limited
Tennessee	-	Tennessee Gas Pipeline Company
Texas Eastern	-	Texas Eastern Transmission Corporation
TransCanada or TCPL	-	TransCanada PipeLines Limited
Turbo	-	Turbo Resources Limited
Union	-	Union Gas Limited
United	-	United Gas Pipe Line Company
Westcoast	-	Westcoast Transmission Company Limited
Western Delivery System	-	The pipeline facilities south from Kingsgate on the Canada - United States boundary, comprising portions of the PGT, Northwest and El Paso systems, constituting the western prebuilt United States facilities of the ANGTS.
Western Leg	-	The facilities of Foothills (Alta.), Foothills (South B.C.), AGTL and ANG linking James River and Kingsgate, over which Pan-Alberta's gas would be transported for export at Kingsgate.

INTRODUCTION

This Report is in two parts. Part I deals with the applications of Pan-Alberta Gas Ltd. for new licences to export natural gas, considered at a public hearing held in Ottawa commencing 18 March 1980 under Order GH-1-80. Part II deals with the application of Consolidated Natural Gas Limited to have Monchy, Saskatchewan, added as an authorized export point in its existing Licence GL-61. That application was also considered at the public hearing commencing 18 March 1980, under Order GH-3-80.

PART I

Application by Pan-Alberta Gas Ltd.
for licences to export natural gas.

CHAPTER P-1

BACKGROUND

By Order No. GH-4-79, the Board conducted a public hearing, which commenced on 10 July 1979, to consider eleven applications whereby ten companies sought approval to export a total of 248.8 billion cubic metres (9 640.1 PJ) of natural gas. That hearing is referred to in this report as "the Licence Phase Hearing". The Board subsequently recommended to the Governor in Council that 106.2 billion cubic metres (4 090.6 PJ) of new gas exports be authorized. The Board's Reasons for Decision are contained in its November 1979 Report.

Pan-Alberta Gas Ltd. is a company incorporated under the laws of the Province of Alberta with the object, inter alia, "to purchase, acquire, process, transmit, transport, distribute and sell or otherwise acquire and dispose of gas". It is currently owned 50.005 percent by The Alberta Gas Trunk Line Company Limited and 49.995 percent by Alberta Energy Company.

In an application dated 4 May 1979, made jointly with TransCanada and Consolidated, Pan Alberta directly tied its proposed exports to the prebuilding of the southern portions of the ANGTS, to provide gas throughputs to the prebuilt facilities before Alaskan gas commences to flow. In its November 1979 Report(1), the Board found that

> "prebuilding of the Foothills pipeline system is in the public interest and that the export of Alberta gas through the prebuilt facilities until Alaska gas flows, would foster the financing of the whole project. Accordingly, the Board concludes that the issuance of licences to Pan-Alberta in which the quantities of gas to be exported conform with the quantities that can be allowed by the phase-down procedure adopted by the Board under the Current Deliverability Test, would not only be consistent with the public interest but also would be consistent with the treatment accorded other Applicants."

---

(1) P. 9-22

The Board issued Licences GL-58 and GL-59 in December 1979 to Pan-Alberta, subsequent to its November 1979 Decision. Licence GL-58 authorizes the export at Monchy, Saskatchewan of a total of 37 324 800 000 cubic metres during the period 1 November 1981 to 31 October 1987, as follows:

Period	Daily (cubic metres)	Annual (cubic metres)
1 Nov 81 - 31 Oct 84	24 928 500	8 294 400 000
1 Nov 84 - 31 Oct 85	18 696 400	6 220 800 000
1 Nov 85 - 31 Oct 86	12 464 300	4 147 200 000
1 Nov 86 - 31 Oct 87	6 232 100	2 073 600 000

Licence GL-59 authorizes the export at Kingsgate, British Columbia of a total of 13 685 700 000 cubic metres during the period 1 November 1980 to 31 October 1987, as follows:

Period	Daily (cubic metres)	Annual (cubic metres)
1 Nov 80 - 31 Oct 84	7 478 600	2 488 300 000
1 Nov 84 - 31 Oct 85	5 608 900	1 866 200 000
1 Nov 85 - 31 Oct 86	3 739 300	1 244 200 000
1 Nov 86 - 31 Oct 87	1 869 000	622 100 000

In its disposition of applications to export gas, the Board can issue licences, subject to the approval of the Governor in Council, only if it has first satisfied itself that the quantity of gas to be exported is surplus to the reasonably foreseeable requirements for use in Canada, having regard to the trends in the discovery of gas. In its November 1979 Report, the Board made its findings with respect to its three surplus tests, as follows:

a. Under the Current Deliverability Test, the maximum quantity of gas that would be available for export in the pattern applied for, plus associated fuel for transportation in Canada, was approximately 4.8 EJ.

b. Under the Current Reserves Test, the maximum quantity of gas that could be declared surplus, in the absence of restrictions imposed by application of the two deliverability tests, was 10.6 EJ.

c. Under the Future Deliverability Test, the maximum quantity of gas that would be available from established reserves and from additions to reserves, tracking the applied-for exports, plus associated fuel for transportation in Canada, was approximately 10.0 EJ.

CHAPTER P-2

THE APPLICATIONS

Pan-Alberta applied in two applications dated 12 February 1980, for two new licences to export gas. In the first application, Pan-Alberta applied for:

a. authorization to export at Kingsgate, B.C. a "firm" volume of 6 220 800 000 cubic metres during the period 1 November 1983 to 31 October 1987, as follows:

Period	Daily (cubic metres)	Annual (cubic metres)
1 Nov 83 - 31 Oct 84	1 869 700	622 100 000
1 Nov 84 - 31 Oct 85	3 739 400	1 244 200 000
1 Nov 85 - 31 Oct 86	5 609 000	1 866 200 000
1 Nov 86 - 31 Oct 87	7 478 600	2 488 300 000

b. an additional "conditional"(2) authorization to export at Kingsgate, B.C. a further 9 953 200 000 cubic metres during the period 1 November 1987 to 31 October 1992, at a daily maximum of 7 478 600 cubic metres and an annual maximum of 2 488 300 000 cubic metres;(3)

c. an additional "conditional" authorization to export at Kingsgate, B.C. during the period 1 November 1987 to 31 October 1988, a quantity of gas equal to the difference between the maximum volume of exports authorized under Licence GL-59 for the period 1 November 1980 to 31 October 1981 and the actual exports made under that Licence in that same period, provided that total exports made in the period 1 November 1987 to 31 October 1988 do not exceed 7 478 600 cubic metres per day or 2 488 300 000 cubic metres for the year;

---

(2) See page (vi) "extended-period exports"

(3) Pan-Alberta withdrew this part of its application on the opening day of the hearing.

d. an authorization allowing Pan-Alberta to export at Kingsgate, B.C. during the period 1 November 1980 to 31 October 1983 up to 340 000 000 cubic metres per year, but any gas so exported would reduce by a similar amount the total volume to be authorized under the "firm" volume reflected in 'a' above; and

e. an authorization to exceed, as a tolerance, the daily volumes authorized by two percent.

In the second application, Pan-Alberta applied for:

a. authorization to export at Monchy, Saskatchewan, a "firm" volume of 7 914 800 000 cubic metres during the period 1 November 1984 to 31 October 1987, as follows:

Period	Daily (cubic metres)	Annual (cubic metres)
1 Nov 84 - 31 Oct 85	6 232 100	2 073 600 000
1 Nov 85 - 31 Oct 86	12 464 200	4 147 200 000
1 Nov 86 - 31 Oct 87	5 091 300	1 694 000 000

b. an additional "conditional" authorization to export at Monchy, Saskatchewan, during the period 1 November 1986 to 31 October 1988, a quantity of gas equal to the difference between the maximum volume of exports authorized under Licence GL-58 for the period 1 November 1981 to 31 October 1982 and the actual exports made under that licence in the same period, provided that:

(1) for the period 1 November 1986 to 31 October 1987, the total exports made during the period under Licence GL-58, the new "firm" exports requested under 'a' above, and the

within "conditional" exports, do not exceed 24 928 500 cubic metres per day or 8 294 400 000 cubic metres for the year; and

(2) for the period 1 November 1987 to 31 October 1988, the total exports do not exceed the remaining "conditional" quantities of gas not exported in the period 1 November 1986 to 31 October 1987, and in any event, do not exceed 24 928 500 cubic metres per day or 8 294 400 000 cubic metres for the year.

c. an authorization to exceed, as a tolerance, the daily volumes authorized by two percent.

By a letter dated 12 March 1980, Pan-Alberta made application with respect to three additional matters, all arising from the Board's Decision of November 1979 pursuant to Order GH-4-79. Pan-Alberta applied for:

a. an amendment to Condition 5 of Licence GL-59, for it to read as follows:

"5. Gas exported under the authority of and in accordance with this licence shall be delivered to the point of export near Kingsgate, in the Province of British Columbia.";

b. a variance of the Board's findings on page 9-23 of the November 1979 Report, wherein the Board stated:

"Accordingly, the Board will condition the Pan-Alberta licences so that they authorize the export through the prebuilt facilities of Foothills only."

in order to clarify that gas exported under Licence GL-59 can be shipped in the various pipelines which will, in sum, comprise the prebuilt Western Leg system; and

c. a retraction of the Board's findings on page 9-22 of the November 1979 Report, wherein the Board stated:

"Should this not take place it would be the intent of the Board to conduct a review of these licences under Section 17 of the Act".

CHAPTER P-3

EVIDENCE

Supply

Pan-Alberta's supply and capability evidence was essentially unchanged from that submitted in 1979, during the Licence Phase Hearing. The remaining established reserves of natural gas which Pan-Alberta stated it had under contract as of October 1979 were the equivalent of 7.32 EJ.

Pan-Alberta testified it held AERCB Permit No. PA 74-1, authorizing it to remove from Alberta the equivalent of 1.1 EJ during the period 1 November 1974 to 31 October 1989 and Permit No. PA 79-2, authorizing it to remove the equivalent of 3.7 EJ over the period 1 November 1980 to 31 October 1995. Pan-Alberta also stated that it had applied to the AERCB for an amendment to Permit PA 79-2 to remove an additional 3.8 EJ from the Province.

In the Licence Phase Hearing, Pan-Alberta submitted a supply-requirements forecast which reflected all of its potential requirements for Canadian markets (including Q & M) and for exports proposed to be made through prebuilt sections of the Foothills (Yukon) pipeline. This forecast indicated that Pan-Alberta's supply was adequate to meet its demand for five years while, in the 1985-86 contract year a deficiency would occur. During the current hearing, Pan-Alberta stated that it had sufficient gas under contract to meet its existing commitments, pipeline fuel and reprocessing shrinkage and the current export applications.

With respect to surplus, Pan-Alberta testified that it was applying for the remaining surplus volumes of gas in the years 1984 to 1987 that had not been allocated by the Board as a result of the Licence Phase Hearing.

Transportation Facilities - Canada

Western Leg

The gas to be sold by Pan-Alberta to Northwest Alaskan would be transported through the Western Leg of the prebuilt facilities of Foothills to the point of export at Kingsgate. The facilities which are to be installed in 1980 would include 124 km of 914.4 mm loop of the AGTL mainline from James River, Alberta to Coleman, Alberta and 88 km of

914 mm loop of the ANG through southern British Columbia from Coleman to Kingsgate. These facilities, including the Foothills loops and the existing pipelines, would be capable of transporting 6 798 700 cubic metres of gas per day to Kingsgate, B.C. The Alberta portion would be ready to go into service by 1 November 1980; the southern British Columbia loops would probably be ready by 1 March 1981.

Eastern Leg

The gas to be sold by Pan-Alberta to Northwest Alaskan would be transported to Monchy, Saskatchewan through the prebuilt facilities of Foothills, comprising the Eastern Leg express line from James River, Alberta to Monchy. The facilities in Alberta would include 378 km of 1 066.8 mm pipe from James River to Empress, Alberta, and those in Saskatchewan would include 259 km of 1 066.8 mm pipe from the Alberta border to Monchy.

The Eastern Leg would be capable of transporting 24 928 500 cubic metres of gas per day to Monchy by January 1982 and, with the addition of compression facilities in 1982, the capability could be increased to 26 344 900 cubic metres per day.

U.S. Markets - Western Delivery System

Pan-Alberta contracted to sell 6 798 700 cubic metres of gas per day to Northwest Alaskan at Kingsgate, British Columbia. The contract provisions included minimum annual "take-and-pay" at 85 percent load factor and sales on a "best efforts" basis in excess of the contract quantity.

The gas to be sold by Pan-Alberta to Northwest Alaskan would in turn be sold by Northwest Alaskan to Pacific Interstate for distribution in the southern California market by SoCal. The gas would be transported from Kingsgate to Stanfield, Oregon through the PGT system, which would be looped to provide new capacity, and south from Stanfield through facilities of Northwest and El Paso for delivery of the gas to SoCal at the California/Arizona border. The route, referred to as the Western Delivery System, would be expanded to transport the 6 798 700 cubic metres of gas proposed for export by Pan-Alberta. Any gas proposed for delivery through the system in excess of the contract quantity of 6 798 700 cubic metres per day would be transported on a best efforts basis.

U.S. Markets - Eastern Leg

Pan-Alberta contracted to sell to Northwest Alaskan 22 662 300 cubic metres of gas per day at the interconnection of the Foothills (Sask.) facilities and the Northern Border pipeline facilities at the international boundary line near Monchy, Saskatchewan. The sales contract included a minimum annual "take-and-pay" provision based on an 85 percent load factor. It also provided for sales in excess of the contract quantity if requested by the purchaser and if supply were available.

The gas sold to Northwest Alaskan by Pan-Alberta would in turn be sold to Northern Natural (5 665 600 cubic metres per day), Panhandle (4 249 200 cubic metres per day) and ANB, a wholly-owned subsidiary of United (12 747 500 cubic metres per day). The gas would be transported from Monchy, Saskatchewan to Ventura, Iowa through the proposed 1 321 km of 1 066.8 mm pipe of Northern Border. The pipeline would be designed to accommodate the contract quantity, but additional compression facilities could be installed to provide additional capacity.

The gas would be sold by Northwest Alaskan's three customers in their respective service areas, either directly or through exchanges at the pipeline terminus, to alleviate curtailment of deliveries to their existing gas customers.

Volumes Required for Financeability

Licences GL-58 and GL-59 issued to Pan-Alberta for the export of gas at Monchy, Saskatchewan and Kingsgate, British Columbia, respectively, anticipated the commencement of deliveries on 1 November 1981, at Monchy and on 1 November 1980, at Kingsgate, with total annual quantities exported during each twelve-month period thereafter. Evidence was presented to indicate that full deliveries through the Eastern Leg might not commence until January 1982, and the Western Leg might not reach its full export capability before the summer of 1981, because of the time needed to complete the required new facilities south of the Canada-U.S. border.

The findings relating to financeability of prebuild facilities (National Energy Board, Findings, Foothills Pipe Lines (Yukon) Ltd., March 1980) indicated that the Eastern Leg would be financeable if a

total throughput of 57 987 100 000 cubic metres were authorized by firm export licences. This quantity would include all of the term volume in Pan-Alberta's Licence GL-58, the term volume applied-for by Pan-Alberta in this proceeding, and the transfer to the Eastern Leg of certain other volumes currently licenced for export over other pipeline systems. Pan-Alberta submitted that any slippage in the commencement date of exports under Licence GL-58 would require a make-up of the volume not taken during the first year, in order to ensure that the total throughput volumes required for financeability were available for export.

Similarly, the Board found that the Western Leg would be financeable if a total throughput of 19 906 500 000 cubic metres were authorized by firm export licences. The authorized export quantity in Pan-Alberta's Licence GL-59 plus the volumes applied-for by Pan-Alberta in this proceeding would satisfy the volume requirement. Nevertheless, Pan-Alberta stated that any delay in the commencement of deliveries under GL-59 would also necessitate the make-up during later years of volumes not exported during the first year, if the volume requirements for financeability of the prebuild facilities were to be met.

Export Flexibility - Western Leg

Pan-Alberta requested that the proposed licence to export gas at Kingsgate, B.C., be conditioned to allow the annual export of 340 000 000 cubic metres of gas during the period 1 November 1980 to 31 October 1983. The quantity of gas exported during the period 1 November 1983 to 31 October 1987 would be reduced by an amount equal to the quantity of gas exported during the period 1 November 1980 to 31 October 1983. The ability to increase gas exports during the early years was to allow delivery flexibility.

Pan-Alberta's contract with Northwest Alaskan and the transportation contracts for the transfer of the gas through the Western Delivery System to the southern California markets were for 6 798 700 cubic metres of gas per day (the "contract quantity"). In the findings relating to the financeability of prebuild facilities it was determined that the Western Leg would be financeable with a total throughput of 19 906 500 000 cubic metres, which is equivalent to the delivery of the

contract quantity over an eight-year period. The evidence indicated that the pipeline companies would be prepared to go ahead, if the total throughput quantity was made available over a seven-year term, and on this basis, the average daily throughput would be 7 788 000 cubic metres.

Any volume shipped through the Western Delivery System in excess of the contract quantity would be on a best efforts basis, and the take-and-pay clause in the contracts would only apply to the contract quantity.

<u>Amendment to Condition 5 of Licence GL-59</u>

Pan-Alberta stated that Foothills (Yukon) no longer intended to build a complete through-pipeline from James River to Kingsgate as the prebuild phase of its Western Leg. Rather, the revised plans of Foothills, previously described in the section "Transportation Facilities - Canada, Western Leg", provide for the use of existing facilities of AGTL and ANG as well as new "loops" to those systems, which would be the prebuilt facilities of Foothills (Alta.) and Foothills (South B.C.) respectively. Accordingly, Pan-Alberta sought to have Condition 5 of Licence GL-59, which currently restricts deliveries to the Foothills facilities only, amended to reflect the revised pipeline construction and shipping plans.

<u>Review of Pan-Alberta's Licences under Section 17</u>

Pan-Alberta applied to have the Board rescind the statement appearing on page 9-22 of the November 1979 Report, which states:

> "The Board is prepared to issue licences to Pan-Alberta on the understanding that the construction of prebuilt facilities will proceed expeditiously for completion of the Western leg by November 1980 and the Eastern Leg by November 1981. Should this not take place it would be the intent of the Board to conduct a review of these licences under Section 17 of the Act."

Pan-Alberta believed this statement was an impediment to financing of the prebuilt facilities of Foothills, and referred to page 29 of the Board's March 1980 Report "Findings, Foothills Pipe Lines (Yukon) Ltd.", where the Board said:

> "The Board finds that the stated intent of the Board at page 9-22 of the Licence Phase Decision to review licences if construction of prebuild facilities were to be delayed, is inhibiting to financing. Therefore, a review of the licences under Section 17 of the Act is no longer desirable."

Pan-Alberta argued that the continuation of a stated intention to review the licences, or its replacement by a similar review procedure as proposed by Michigan-Wisconsin, Midwestern and Tennessee, would continue to inhibit financing. In any event, Pan-Alberta noted that as the Board has such powers of review under the authority of the National Energy Board Act, there was no need to recite such an intent to review in a decision.

Producer Economics

Pan-Alberta stated that it felt that a six-year export term represented the minimum period required by the producers in order to finance new facilities associated with the development of reserves. It further stated that the short period of full deliveries in the existing licences granted to Pan-Alberta made it impossible for Pan-Alberta to accept the existing take-or-pay obligations in its gas purchase contracts with producers, and that, even with the approval of the new firm volumes requested, modification of the take-or-pay provisions would probably be required.

Pan-Alberta estimated that total investment in production facilities would probably be close to $1 billion. This investment would only be undertaken by producers if the term of exports were extended and acceptable take-or-pay provisions were available to producers.

Cost-Benefit Analysis

Pan-Alberta estimated the net economic benefits associated with its authorized and proposed exports to be some $5 billion (net present value at a ten percent rate of discount in 1978 dollars) as compared with the alternative of using the gas at a later date in Canada. Under an alternative assumption in which natural gas export prices would rise at three percent per year in real terms, Pan-Alberta estimated net economic benefits to be $4.6 billion. The export proposal was evaluated in 1978 dollars; the results are summarized in Table I.

Pan-Alberta noted that several significant changes had taken place following the Board's November 1979 Decision, and that these were reflected in its cost-benefit analysis.

The Pan-Alberta study was based upon total exports of about 65 billion cubic metres over the period 1980 to 1987, including volumes authorized under Licences GL-58 and GL-59, as well as the proposed new exports. Exports would be transported over the prebuilt facilities of Foothills, which were included in the analysis on a "stand-alone" basis rather than on an incremental basis to the ANGTS. Pan-Alberta noted that recent design changes in the prebuilt facilities had resulted in significantly lower transportation costs, and that dramatic increases in world crude oil prices had altered the export value of natural gas.

Benefits were represented by the value of natural gas exports plus the value of natural gas by-products, which were assumed to be 20 percent of the export price of natural gas. Pan-Alberta considered two export price scenarios -- a base case in which the current export price of $4.17 (U.S.) per gigajoule was assumed constant in real terms, and a second case in which the export price escalated at three percent per year in real terms.

Incremental capital expenditures by gas producers on development drilling, gas plants and gathering facilities were calculated on the basis of average estimates that had been used by the Board in its November 1979 Report. Producers' incremental operating costs were estimated to be 0.71 cents per cubic metre for lifting, and 0.88 cents per cubic metre for processing, including 17 percent shrinkage. The incremental cost of moving the gas from the plant gate to the Foothills facilities was based on a rate of 0.48 cents per cubic metre.

Capital expenditures associated with the prebuilt facilities were derived from estimates provided by Foothills (Yukon) and totalled over $500 million. Operating costs per cubic metre of throughput were estimated for the Foothills (Yukon) facilities to be the following: 0.04 cents for operating and maintenance costs; 0.04 cents for municipal taxes; 0.07 cents for fuel; and 0.14 cents in 1980 and 0.04 cent

thereafter for administrative charges. Municipal taxes were included on the assumption that the resulting revenue would be used to pay for the required incremental public infrastructure and services.

Also included in the analysis was a gas replacement cost associated with having to use a higher cost energy source sooner than would otherwise be the case in the absence of exports. Pan-Alberta represented this cost by the value of imported crude oil required to replace 2 833 million cubic metres of gas. The crude oil was valued at a premium of 20 percent above the price of natural gas and was assumed imported in 1998.

For the purposes of assessing an alternative use for the gas within the framework of the cost-benefit analysis, Pan-Alberta assumed that, were the gas not exported, it would be sold in Eastern Canadian markets during the period 2000 to 2007. Benefits were derived from the future sale of the gas and associated by-products. Direct costs were represented by the producers' costs, and the transmission costs of AGTL and TCPL.

Table I

Pan-Alberta's Estimates of the Costs and Benefits of Pan-Alberta's Exports
(Present Value, millions of 1978 dollars)

	Discount Rate (%)	Benefits (1)	Costs (2)	Net Economic Benefits (3)=(1)-(2)
Base Case				
Export price of	5	9 984	5 954	4 030
$4.17 (US)/GJ	10	8 350	3 304	5 046
and constant	15	7 083	2 400	4 683
Alternative Price Case				
Export price of	5	11 222	10 324	898
$4.17 (US)/GJ	10	9 346	4 702	4 644
and rising at 3% a year	15	7 896	2 888	5 008

CHAPTER 4

INTERVENTIONS

Forty-three parties intervened in the proceedings. Their views, where given, are summarized below.

Associations

The Canadian Petroleum Association supported Pan-Alberta's applications. It believed the additional export volumes were needed for the financing of Foothills, and that the exports would provide access to markets for shut-in gas, such sales giving impetus to the industry to continue its search for energy. The position of the Independent Petroleum Association of Canada was not dissimilar. However, it implied that, at some future hearing, it would wish to make a submission on the appropriateness of the Board's three tests for surplus, particularly the Current Deliverability Test.

Licence-Holders

Consolidated, ProGas and Sulpetro all supported the Pan-Alberta applications. ProGas noted that the gas to be exported was surplus, and that additional exports were required for the financing and economic viability of the Foothills project. Sulpetro described the interrelationship of its own gas exports and those of Pan-Alberta, referring to the need for access to markets for it and the other producers of the gas it proposes to export, in order for the necessary investment in production facilities to be recovered. The Sulpetro gas will be purchased by Pan-Alberta after Sulpetro's licence, GL-57, terminates in 1982.

Columbia initially opposed the applications by Pan-Alberta, objecting to the proposed use of future deliverability surplus for extended-period exports in the 1988 - 1992 period. In light of Pan-Alberta's withdrawal of this portion of its applications, Columbia withdrew its objection.

Niagara, TransCanada and Westcoast did not express a position on the Pan-Alberta applications.

Producers

Ten producers of natural gas intervened in the hearing; four presented evidence and three presented argument.

Amoco supported the applications and presented evidence updating reserves information on the Granada and Elmworth areas of Alberta, described as major supply areas for Pan-Alberta. It also provided reserves information relating to Amoco's recent Brown Creek gas discovery. Amoco stated that the Board should consider the economic viability of the facilities which would have to be built to provide the deliverability required to achieve the level of exports envisaged. In Amoco's view, the currently authorized exports under Licences GL-58 and GL-59 might not provide a sufficient term, even at full volumes, to economically justify and therefore allow the recovery of investment that would have to be made by producers and others for the gathering systems, processing plants and transmission laterals. Amoco believed that a denial of the applications would prevent these investments being made, thereby "locking-in" the gas reserves, and the employment benefit arising from the investments would therefore not materialize. Amoco estimated that its own investment in new facilities, related to the Pan-Alberta exports, would be about $225 million.

Chieftain also referred to the difficulties experienced by producers in financing facilities in the face of only short periods of access to markets, expressing similar views to those of Amoco. Chieftain supported the applications.

Dome believed that only by encouraging the continuation of the current high level of exploration activity, through the mechanism of ensuring a market for all natural gas reserves, could Canada realize its gas potential and thus ensure security of supply. It believed that timely authorizations of exports of gas surplus to Canadian requirements was the best mechanism available to provide this encouragement. It supported Pan-Alberta's applications.

Gulf provided reserves information on the Hanlan-Robb area of Alberta. Gulf indicated that significant volumes of gas from this field

were under contract to Pan-Alberta. Gulf, in partnership with other producers in the field, proposed to construct a sour gas processing facility by early 1983 to bring these reserves on-stream, but it stated that this construction was dependent on the granting of the Pan-Alberta applications and on the continuance of the prebuild project. The capital cost of the processing plant was estimated to be $360 million, providing employment for some 500 Canadians. Gulf supported the applications.

Imperial supported the Pan-Alberta applications, noting that they should bring about the timely financing of the prebuild project. Imperial believed the prebuild project would facilitate access to the Mackenzie Delta gas reserves through the Dempster Lateral, which would be a part of the whole ANGTS. Imperial also noted that some producers would have difficulty financing investments unless the licensed volumes and duration of exports were extended.

Quasar noted that it had interests in 75 shut-in gas wells in Alberta, 28 of which were under contract to Pan-Alberta. The Company supported the applications because, inter alia, it was anxious to obtain some return on the investment costs in these wells. The Company also stated that its ability to obtain financing to further exploration and development efforts had been affected by the short-term nature of the current licences issued to Pan-Alberta, particularly with their phase-down feature. Quasar described the impact those licences, as structured, would have on take or pay contracts, which comprise the collateral for the further financing required.

Signalta and Turbo supported the Pan-Alberta applications, while Canadian Superior did not express a position.

Gas Distributors

Consumers' noted that it had been primarily concerned with Pan-Alberta's request for extended-period exports in the 1988 - 1992 period. In light of the withdrawal of that part of the applications, Consumers' did not oppose the Pan-Alberta proposed exports. Gaz Métropolitain was concerned with the availability and security of supply, in the long term, of gas to serve its customers. It urged the Board to

consider the requirements of new markets in Quebec and the Maritimes, and to assure itself that the degree of flexibility in the present Canadian gas transmission system would not be diminished.

B.C. Hydro and Union did not express an opinion on the applications.

Other Companies

AGTL, ANB, Foothills, Northern Border and Northwest Alaskan all supported Pan-Alberta's applications.

Michigan-Wisconsin, Midwestern, and Tennessee had had an objection to Pan-Alberta's request for extended-period exports in the 1988 - 1992 period. While this objection had been removed when Pan-Alberta withdrew that request, the Companies nevertheless were concerned with the extended-period make-up provision applied-for. They noted that the granting of such provision could give preferential rights to Pan-Alberta on volumes of gas not yet found to be surplus under the Current Deliverability Test, noting therefore that other exporters and other customers of Canada's gas exports might not be able to renew exports because such gas had been committed to Pan-Alberta. Accordingly, the Companies proposed that the Board should condition the new licences to require a review by the Board if all regulatory approvals and all other requirements were not in-place by 1 May 1980 in order for construction to proceed on schedule. In the Companies' view, this procedure would minimize the potential delays, hence minimize the amount of make-up needed.

Natural Gas Pipeline supported the applications, and opposed the proposal of Michigan-Wisconsin, Midwestern, and Tennessee to condition the licences. It noted that the make-up volumes did not increase the total volume to be exported, and that it was necessary to take the likelihood of delay into account in major new pipeline projects.

United also supported the applications, and referred to the impact of the phase-down in the current licences after 1984 on United's

gas supply. Because it anticipated a rapid depletion of its currently contracted reserves during this period, the additional volumes requested by Pan-Alberta would be very important to United. It added that without the additional exports United would be forced to reconsider its participation in the prebuild project.

Dow and Texas Eastern did not express an opinion on the applications.

Public Interest and Other Parties

The Canadian Arctic Resources Committee (CARC) opposed the applications of Pan-Alberta. CARC submitted that the proposed exports were intended solely to permit the financing of the prebuilt facilities of the ANGTS on a stand-alone basis, which, in CARC's view, would violate Condition 12 of Schedule III of the Northern Pipeline Act. CARC advocated that the applications be denied.

The Committee for an Independent Canada (CIC), in providing its own long-term forecast of energy in Canada, believed that the Board should consider the long-term supply and demand for all domestic energy supplies, and submitted that in this context there would be no surplus of gas for export. Accordingly, the CIC recommended that the Board should review and amend its criteria for determining whether proposed exports were surplus to Canada's needs, implying a much longer period of protection than that now considered by the Board. CIC also submitted that the Board should review all the licences approved in November 1979, in light of the CIC's evidence, in order to phase down or revoke such licences. The CIC opposed the current applications and recommended that they be denied.

Energy Probe noted the current oil supply uncertainties in its intervention, making particular reference to the transportation sector. It believed that natural gas might be able to contribute to the supply of transportation fuels either as methane, or by being processed into methanol or synthetic gasoline. It opposed the applications, noting that the potential demand for natural gas for transportation was large, and that the Board had not taken such potential demand into consideration in calculating the natural gas surplus.

Provincial Governments

The Attorney-General of the Province of British Columbia (B.C.) was concerned as to the impact of the proposed exports on the utilization of natural gas transmission facilities in British Columbia, particularly with respect to the export of British Columbia gas to the Northwest Pipeline system. While not opposing the prebuild project, B.C. sought assurance that the Pan-Alberta exports via the Western Leg would not displace British Columbia gas moving south out of the Northwest Pipeline system to El Paso and to other markets as "off-line" sales. B.C. noted the evidence on pipeline capacity on the U.S. portions of the Western Leg, which indicated that there would be insufficient capability to move both the higher daily volumes proposed by Pan-Alberta and the British Columbia sales to El Paso, and submitted that the issue had not been clarified at the hearing. Accordingly, B.C. stated that the applications were not acceptable to it.

B.C. added that, if the Board were to grant the applications, the new licences should be conditioned to require that a minimum capacity of 1.13 billion cubic metres per year be assured in the Western Leg system for the delivery of British Columbia gas for sale to El Paso and to other "off-line" customers.

The Minister of Energy for Ontario submitted that the Board should assess the appropriateness of exporting relatively low cost gas when, in its opinion, in a few years supplementary supplies might be needed from frontier areas at significantly higher prices. Further, it advocated that the supply of crude oil, its price, and the price of natural gas to Canadians, should all be considered by the Board in determining the surplus of gas. Accordingly, Ontario did not support the proposed exports. It believed that approving exports at this time would be out of phase with the need to examine the broader energy issues, and referred to the Board's supply/demand inquiry proposed for late 1980.

Ontario also stated that it could not support a stand-alone prebuild project, noting that without a guarantee of the whole Foothills system being built, a stand-alone project was in effect a purely

export-oriented project which could require additional exports to support it after the current licences expired.

Finally, Ontario expressed the view that if any additional exports of conventional natural gas were to be approved, it should be a condition of such approval that Petrosar-produced synthetic natural gas be exported first in order to relieve Canadian gas utilities of the burden of buying expensive synthetic natural gas.

Le Procureur Général du Québec and the Saskatchewan Department of Mineral Resources did not express an opinion on the proposed exports.

CHAPTER P-5

VIEWS OF THE BOARD

Supply

The Board has not changed its forecast of Pan-Alberta's total deliverability from established reserves from that shown in the November 1979 Report. In that Report, the Board indicated that Pan-Alberta could meet all its requirements until 1985. The Board has reviewed the various components of Pan-Alberta's supply in relation to its requirements, including the proposed exports. On the assumption that Alberta and Southern will meet its contractual commitments to Pan-Alberta, the Board has found that Pan-Alberta could meet all of its requirements, both existing and proposed, for the firm period requested, provided that there are no delays in the in-service dates for the two pipeline legs.

The Board has also considered the effect on Pan-Alberta's supply of a one year delay occuring on both the Western and Eastern Legs, and has concluded that Pan-Alberta might be faced with a slight deficiency in supply in 1987. However, the Board is confident that Pan-Alberta will be able to contract for more gas in Alberta to make up any deficiency which might otherwise be experienced if a one-year delay should occur.

Surplus

The Board, in this Report, has used the forecast of supply and demand from the Licence Phase Hearing as a basis for determining whether the gas Pan-Alberta proposed to export is surplus. In this regard, therefore, the additional applied-for firm quantities must satisfy the Current Deliverability Test within the framework of that forecast, and the additional applied-for firm plus extended-period quantities must similarly satisfy the Future Deliverability Test and the Current Reserves Test.

Pipeline Capacity

The Board is satisfied that pipeline systems in Canada will be capable of moving the total volumes of gas Pan-Alberta proposes to export. The evidence regarding the capacities of the United States

prebuilt portions of the ANGTS was less definitive. The Board notes the concerns of the Attorney General of British Columbia with regard to the capacity of the United States pipelines south of Stanfield, Oregon, but considers the potential transportation problems identified to be beyond the jurisdiction of the Board, and to be problems more appropriately addressed directly by the parties concerned. Accordingly, the Board considers that it would not be appropriate to condition Pan-Alberta's exports via the Western Leg in the manner proposed by British Columbia. As the design and routing of the Western Delivery System south of Stanfield have not yet been finalized, the Board encourages both shippers and transporters of the gas involved to work towards a solution satisfactory to all parties. With regard to the Northern Border system, the Board considers the balance between the capacity of that system and the volumes of gas to be shipped in it to be matters within the control of the backers of the Foothills/Northern Border systems.

Make-up Volumes

With regard to make-up volumes, the Board notes that it has already been found that there must be an assurance of throughput of certain minimum volumes of natural gas in the prebuilt facilities for financing of those facilities to be achieved. The evidence with regard to the in-service dates for the prebuilt facilities indicated a delay would likely be experienced, particularly for the Western Leg, and that, in these circumstances, the required minimum volumes could not be assured unless provision were made in the licences to allow for any gas not exported because of the delay to be made-up later.

The Board notes that when extended-period exports have been authorized in a licence, each such licence is subject to having the authorized extended period volumes curtailed to the extent that deliverability from reserves additions become less, and/or Canadian requirements become greater, than currently forecast.

The Export Price

The Board is satisfied that the requirements of Section 83(b) would be met if the applied-for gas exports were priced at the prevailing export price, where those exports would be made under circumstances similar to current exports under existing licences.

Flexibility

The Board believes that the provision applied-for, permitting the export of up to 340 million cubic metres of gas per year in the first three years of exports at Kingsgate, with a commensurate reduction in exports in the remaining four years, contributes to the viability of the prebuilt project especially to the extent that volumes shipped through the Western Delivery System in excess of the contract quantity would be on a best efforts basis. Thus, the ability to spread the volume of gas to be delivered in excess of the contract quantity over seven years, rather than over the four year term of firm exports, would reduce the potential average daily volume of best efforts sales by 43 percent, greatly improving delivery flexibility for both shipper and pipeline operator.

Condition 5 of Licence GL-59

The Board notes the revised construction plan for the Foothills Western Leg, and believes it would be appropriate to amend Condition 5 of Licence GL-59 to reflect the separate pipelines which will, in combination, comprise the Western Leg.

Section 17 Review

In its Decision of November 1979, the Board found it appropriate to give notice to Pan-Alberta, and to the sponsors of the Foothills (Yukon) pipeline, that it intended to review the licences to be issued to Pan-Alberta should the construction of the prebuilt facilities be delayed. The Board did so in consideration of the special circumstances that applied to Pan-Alberta's 1979 application, that the exports applied-for were specifically tied to the prebuild project, and that they were very large volumes compared to the other proposed exports then before the Board. Because granting licences to Pan-Alberta would commit a substantial volume of gas, and because of the then apparent uncertainty of whether the prebuild project would proceed expeditiously, the Board believed that, should an extended delay in construction occur, it would want to review the licences issued to Pan-Alberta to determine whether they should continue in force, or whether the gas committed to them should be freed for disposition elsewhere.

The Board accepts the evidence that the stated intention to review the licences is an inhibiting factor to the financeability of the prebuilt facilities, and notes the evidence of Foothills on the progress that has been made in bringing the project closer to fruition, albeit with some likelihood of delay in the in-service date of the pipeline, especially for the Western Leg. It was not the intent of the Board, in giving such notice, for that to be the cause of a delay to the project. In light of the foregoing, the Board believes it appropriate to reaffirm the findings contained in its March 1980 Report "Findings, Foothills Pipe Lines (Yukon) Ltd.", that a review of the licences under Section 17 of the Act is no longer desirable.

With respect to the submission of Michigan-Wisconsin, Midwestern and Tennessee that the Board should review the applied-for new licences, and in particular the extended-period make-up provision, should all regulatory approvals not be in-place by 1 May 1980 for the prebuild project to proceed on schedule, the Board believes that such a finding by it would also detract from the financeability of the project, and is not desirable.

Nothing in this finding negates the powers of review resident in Section 17 of the Act.

<u>Producer Economics</u>

The Board notes the arguments presented by Pan-Alberta and the producers with regard to the economics of producer investment. The Board believes that the approval of this application will provide an incentive to producers to undertake the financial and operational risks inherent in limited term gas supply contracts.

<u>Cost-Benefit Conclusions</u>

The Board estimates the net economic benefits to Canada of Pan-Alberta's authorized and proposed exports to be some $4.8 billion (net present value at a ten percent rate of discount in 1979 dollars) as compared with the alternative of using the gas at a later date in Canada.

The estimated economic costs and benefits underlying the Board's analysis are shown in Table II. The estimated net economic benefits to Canada remain significant over the range of discount rates used by the Board.

To assess the impact on net economic benefits of changes in important parameters, the Board has evaluated its estimates under various price, cost, and timing assumptions. The results of this analysis are summarized in Table III. First, a range of higher gas export prices is considered. Table III shows the results of price increases at the rates of three and four percent per year in real terms. Such increases imply a more than doubling of the export price in real terms by the year 2000. Second, the effect of a one-year delay in exporting the gas is considered. Under either of these circumstances, substantial net economic benefits to Canada are expected to flow from the export decision. As indicated, this is true under a wide range of discount rates. However, the Board notes that should future real gas prices rise persistently, the absolute level of net economic benefits from current exports depends principally upon a comparison between the expected rate of increase in gas export prices and the discount rate. Third, a range of costs is considered. Table III also shows the results of doubling gas production, transmission, and gas replacement costs over the Board's base case. Such real cost increases are viewed as extremely unlikely particularly since the export project expenditures will occur in Southern Canada. Even with these hypothetically higher costs, the estimated net economic benefits would be large.

The conceptual approach adopted by the Board to assess the Pan-Alberta export proposal is the same as that used to evaluate the 1979 export proposals filed with the Board and is described in Appendix F of the Board's November 1979 Report.

During cross-examination, Pan-Alberta indicated that the estimated capital costs to be undertaken by gas producers were undoubtedly understated in its cost-benefit analysis and would probably be close to $1 billion. Amoco and Chieftain testified to the effect that their capital costs as producers were about $35,000 per cubic metre of incremental production. The Board has reflected these unit costs in its estimate of the capital expenditures likely to be undertaken by gas producers.

In assessing an alternative to using the gas in its export proposal, Pan-Alberta assumed that gas production could be deferred for 21 years and then produced over eight years for domestic use. It is the Board's view that deliverability cannot be deferred in this manner and that the effect is to overstate the value of this alternative use and, as a result, underestimate the net economic benefits of the project.

The Board agrees with Pan-Alberta that the increased cost to Canadians of having to use higher cost energy sooner than would be the case in the absence of new exports should be included in the cost benefit analysis. As described by Pan-Alberta, this can be estimated by the replacement cost associated with consuming higher cost imported crude oil sooner than would otherwise be the case. However, the Board believes this should be estimated by evaluating the increased cost to Canadians of having to use higher-cost natural gas sooner than would be the case in the absence of new exports, as described in Appendix F of the Board's November 1979 Report.

TABLE II

The Board's Estimates of the Costs and Benefits of Pan-Alberta's Exports

(Present Value, millions of 1979 dollars)

	5%	10%	15%
Project Benefits			
Value of Natural Gas	7 910	6 318	5 128
Value of By-Products	1 978	1 579	1 282
Sub-total	9 888	7 897	6 410
Project Costs			
Producers	1 813	1 528	1 305
Transmission	858	745	657
Gas Replacement Costs	667	394	250
Gas Reserves Adjustment	1 815	425	113
Sub-total	5 153	3 092	2 325
Net Economic Benefits of the Project	4 735	4 805	4 085

Table III

Analysis of the Net Benefits of Pan-Alberta's

Exports Under Various Price, Cost and Timing Assumptions

(Present Value, millions of 1979 dollars)

	Discount Rate (%)	Benefits (1)	Costs (2)	Net Economic Benefits (3)=(1)-(2)
Base Case				
Export price of	5	9 888	5 153	4 735
$4.17 (US)/GJ	10	7 897	3 092	4 805
and constant	15	6 410	2 325	4 085
Changes in Important Parameters				
1. Alternative Price Case I				
Export price of	5	11 114	8 488	2 626
$4.17 (US)/GJ and rising	10	8 839	3 827	5 012
at 3% a year	15	7 146	2 511	4 635
2. Alternative Price Case II				
Export price of	5	11 553	10 491	1 062
$4.17 (US)/GJ and rising	10	9 175	4 252	4 923
at 4% a year	15	7 408	2 616	4 792
3. Project Delay Case				
If exports are delayed	5	9 417	4 993	4 424
one year	10	7 179	2 851	4 328
	15	5 574	2 037	3 537
4. Alternative Cost Case				
If expected costs	5	9 888	8 142	1 746
double	10	7 897	5 669	2 228
	15	6 410	4 509	1 901

Other Matters

The Board considered the comments of the Minister of Energy for Ontario and the Committee for an Independent Canada with respect to the need to assess the surplus of gas within the context of an overall forecast of the supply and demand for all energy forms, and especially for oil.

CHAPTER P-6

DECISION

General

Having considered all of the evidence and argument presented to it with respect to the applications of Pan-Alberta for new licences to export gas, and having taken into account all matters that appear to it to be relevant, the Board is satisfied that it would be in the public interest to allocate the remaining unallocated surplus to Pan-Alberta[4].

As explained on page 8-2 of the November 1979 Report, the Board must verify, each time new exports are considered, that the three tests for surplus are satisfied.

Current Deliverability Test

The Board has repeated its "Tracking the Applied-For Exports" test utilizing the supply capability stated in the November 1979 Report at page 8-6 and by tracking the firm exports sought by Pan-Alberta. The results are shown in Table IV. The Board finds that, after allowing for the minor additional exports for 1980[5] which were granted to TransCanada since the November 1979 Decision, and after allowing for the fuel required to move the proposed new firm exports to the international boundary, the estimated deliverability from established reserves tracks (i.e., meets) Canadian requirements plus authorized exports plus the applied-for exports up to and including 1985, as shown in Column 7 of Table IV. For the years 1986 and 1987, the Board has found that there

---

(4) The Board found that there was a surplus of 4.8 EJ of natural gas, under the Current Deliverability Test, in its Decision of November 1979. Of that amount, 4.3 EJ was dedicated to the new export licences arising from the Decision, either directly as exportable gas, or as pipeline fuel to be used to deliver that gas to the international boundary.

(5) On 28 December 1979, the Board amended Licences GL-18, 20, and 37 lifting the daily volume conditions of each licence, for the period 1 January 1980 to 31 October 1980. As a result, TransCanada was permitted to export on a best efforts basis gas authorized for export in previous years but not delivered. The amendments did not involve new export volumes, but they must be taken into account for deliverability verification.

TABLE IV

CURRENT DELIVERABILITY TEST

(Petajoules/Year)

Year	(1) Domestic Demand	(2) Existing Licences	(3) Applied-for Exports	(4) Allowance for Fuel	(5) Total (3+6+7)	(6) Tracking Col. (5)	(7) Deficiency (5 - 6)
1980	2 076	1 370	2	0	3 448	3 448	0
81	2 172	1 595	13	0	3 780	3 780	0
82	2 265	1 856	13	0	4 134	4 134	0
83	2 357	1 837	15	0	4 209	4 209	0
84	2 456	1 811	42	1	4 310	4 310	0
1985	2 557	1 598	147	3	4 305	4 305	0
86	2 617	1 295	223	4	4 139	4 091	48
87	2 668	958	136	3	3 765	3 751	14
88	2 731	756			3 488	3 421	67
89	2 784	612			3 397	3 088	309
1990	2 841	246			3 087	2 813	274
91	2 900	147			3 046	2 553	493
92	2 987	63			3 050	2 307	743
93	3 087	55			3 141	2 101	1 040
94	3 176	14			3 190	1 898	1 292
1995	3 275	12			3 287	1 692	1 595
96	3 367	0			3 367	1 531	1 836
97	3 464	0			3 464	1 445	2 019
98	3 568	0			3 568	1 308	2 260
99	3 675	0			3 675	1 170	2 505
2000	3 789	0			3 789	1 060	2 729

- Column (1) is the total domestic demand which includes provision for expansion markets and fuel for existing export licences.
- Column (2) is the allowance made for existing licences.
- Column (3) is the allowance made for the total applied-for firm export quantities.
- Column (4) is the incremental fuel for the applied-for exports.
- Column (6) is the current supply tracking total requirements shown in column (5).

would be a deficiency in current deliverability of 48 PJ and 14 PJ respectively, if the full applied-for volumes were approved. This deficiency arises partly because the Board has included provision for the export during the 1 November 1980 to 31 October 1983 period of up to 13.3 PJ per year of "operational flexibility" gas, which volumes are also included in the export profile of the 1 November 1983 to 31 October 1987 period. This is done because the Current Deliverability Test must be satisfied for the maximum potential exports in each year of the licence term, even though it may not be feasible to reach the maximum level in every year because of other licence conditions, such as the term or total volume condition.

Current Reserves Test

The Board has recalculated the surplus remaining as of 31 December 1979 under the Current Reserves Test, and finds that the current reserves surplus is 6.3 EJ after allowing for the exports approved in the November 1979 decision, for the additional fuel required to move those exports, and for the additional exports granted TransCanada (per footnote (5)). This quantity exceeds the applied-for quantities for both firm and extended-period exports.

Future Deliverability Test

As stated in the November 1979 Report, the main purpose of the Future Deliverability Test is to ensure that new exports will not cause a future deliverability shortfall to occur within ten years. In addition, the Board may consider it appropriate to grant extended-period export authorization under the Future Deliverability Test if it is in the public interest to do so.

The Board has repeated its "Tracking the Applied-For Exports" test utilizing the supply capability including reserves additions stated in the November 1979 Report at page 8-10 and by tracking the firm and extended period exports sought by Pan-Alberta. The results are shown in Table V. The Board finds that the Future Deliverability Test is satisfied and that total Canadian demand, currently authorized exports, and the applied-for exports can be satisfied through 1996.

TABLE V

FUTURE DELIVERABILITY TEST

(Petajoules/Year)

Year	(1) Domestic Demand	(2) Existing Licences	(3) Applied-for Exports	(4) Allowance for Fuel	(5) Total (3+6+7)	(6) Tracking Col. (5)	(7) Deficiency (5 - 6)
1980	2 076	1 370	2	0	3 448	3 448	0
81	2 172	1 595	13	0	3 780	3 780	0
82	2 265	1 856	13	0	4 134	4 134	0
83	2 357	1 837	15	0	4 209	4 209	0
84	2 456	1 811	42	1	4 310	4 310	0
1985	2 557	1 598	147	3	4 305	4 305	0
86	2 617	1 295	252	5	4 169	4 169	0
87	2 668	958	354	7	3 987	3 987	0
88	2 731	756	174	4	3 665	3 665	0
89	2 784	612			3 397	3 397	0
1990	2 841	246			3 087	3 087	0
91	2 900	147			3 046	3 046	0
92	2 987	63			3 050	3 050	0
93	3 087	55			3 141	3 141	0
94	3 176	14			3 190	3 190	0
1995	3 275	12			3 287	3 287	0
96	3 367	0			3 367	3 367	0
97	3 464	0			3 464	3 361	103
98	3 568	0			3 568	3 202	366
99	3 675	0			3 675	3 034	641
2000	3 789	0			3 789	2 903	886

- Column (1) is the total domestic demand which includes provision for expansion markets and fuel for existing export licences.
- Column (2) is the allowance made for existing licences.
- Column (3) is the allowance made for the total applied-for firm plus extended-period export quantities.
- Column (4) is the incremental fuel for the applied-for exports.
- Column (6) is the future supply tracking total requirements shown in column (5).

Findings

In light of the indicated deficiency in current deliverability in 1986 and 1987, the Board finds that it cannot grant, as firm exports, the full volumes sought by Pan-Alberta for these two years. However, the Board recognizes that there is a measure of double counting inherent in the Current Deliverability Test procedure arising, as explained, from the treatment that must necessarily be accorded the "operational flexibility" volumes, and that therefore it would not be inconsistent with the public interest to authorize by extended-period licence the export of the quantity comprising the shortfall.

The Board also finds that it is in the public interest to grant the extended-period make-up exports requested by Pan-Alberta for the 1 November 1987 to 31 October 1988 period for the Western Leg exports, and for the 1 November 1986 to 31 October 1988 period for the Eastern Leg exports. The Board believes this can be most appropriately achieved through an amendment to Licences GL-59 and GL-58 respectively.

The Board believes that the granting of extended-period exports to Pan-Alberta under the Future Deliverability Test is in the public interest having in mind that:

(a) the prebuilding of the southern portions of the Foothills (Yukon) project has been found to be in the public interest and minimum throughput volumes have been established as necessary for the financeability of this project; and

(b) the extended-period make-up quantities would cover the gas that may not be delivered in the first licence year due to delays in pipeline construction or because of operational difficulties that may occur in the Western delivery system.

If future reviews by the Board indicate that the deliverability in any year is insufficient to meet the projected supply/demand balance, the Board will have the opportunity to reduce or rescind the extended-period volumes granted under the Future Deliverability Test. The Board has therefore added a condition to the licences to be granted, applicable to the extended period volumes authorized under the Future Deliverability

Test, to ensure that the Licencee will interrupt the export of these volumes whenever the Board or the Licencee determines that deliverability is insufficient to provide service to Canadian customers and to other export customers being served by firm licences granted under the Current Deliverability Test. It would not be necessary for the extended-period quantities to satisfy the minimum period of protection under the Current Deliverability Test, before the gas could be exported. Rather, it would only be necessary, in the year of delivery, for there to be sufficient deliverability in Canada to satisfy Canadian requirements, firm authorized exports, and the extended period quantities.

Decision

In light of the foregoing, the Board believes that it would be in the public interest to approve new firm and extended-period natural gas exports by Pan-Alberta Gas Ltd., through a combination of amendments to Licences GL-58 and GL-59, held by Pan-Alberta, and by the issuance of new licences, as follows:

a. By amending Licence GL-59 so that:
   (1) Condition 2 would authorize extended-period exports of make-up volumes in the 1 November 1987 - 31 October 1988 period, and
   (2) Condition 5 would authorize movement of the gas through the various pipelines that will comprise the prebuilt facilities of the Western Leg.

b. By amending Condition 2 of Licence GL-58 to authorize extended-period exports of make-up volumes in the 1 November 1986 - 31 October 1988 period.

c. By issuing a new licence to authorize exports of gas at Kingsgate, British Columbia, for a seven-year period commencing 1 November 1980, providing for the following:
   (1) a total firm quantity that may be exported during the period of the licence of 4 632 800 000 cubic metres, exportable at the following maximums in the periods specified:

Period	Annual (cubic metres)	Daily (cubic metres)
1 Nov 83 - 31 Oct 84	622 100 000	1 869 700
1 Nov 84 - 31 Oct 85	1 244 200 000	3 739 400
1 Nov 85 - 31 Oct 86	841 200 000	2 528 300
1 Nov 86 - 31 Oct 87	1 925 300 000	5 786 400

(2) authority to export up to 340 000 000 cubic metres per year in the period 1 November 1980 to 31 October 1983, such volumes so exported reducing by an equal amount the firm authorized exports in the period 1 November 1983 to 31 October 1987.

(3) extended-period exports totalling 1 588 000 000 cubic metres that may be exported in the period 1 November 1985 to 31 October 1987, exportable under the following maximums in the periods specified:

Period	Annual (cubic metres)	Daily (cubic metres)
1 Nov 85 - 31 Oct 86	1 025 000 000	3 080 700
1 Nov 86 - 31 Oct 87	563 000 000	1 692 200

(4) a tolerance of two percent by which the Licencee may exceed the daily limitation.

d. By issuing a new licence to authorize new firm exports at Monchy, Saskatchewan, for a three-year period commencing 1 November 1984, providing for the following:

(1) a total firm quantity that may be exported during the period of the licence of 7 914 800 000 cubic metres, exportable at the following maximums in the periods specified:

Period	Annual (cubic metres)	Daily (cubic metres)
1 Nov 84 - 31 Oct 85	2 073 600 000	6 232 100
1 Nov 85 - 31 Oct 86	4 147 200 000	12 464 200
1 Nov 86 - 31 Oct 87	1 694 000 000	5 091 300

(2) a tolerance of two percent by which the Licensee may exceed the daily limitation.

Accordingly, the Board is prepared, subject to the approval of the Governor-in-Council, to issue an Order to amend Licences GL-58 and GL-59, and to issue new licences, as shown at Appendix III.

R. F. Brooks
Presiding Member

L. M. Thur
Member

J. R. Jenkins
Member

PART II

Application by Consolidated Natural Gas Limited to add Monchy, Saskatchewan as an export point under Licence GL-61.

CHAPTER C-1

BACKGROUND

Consolidated Natural Gas Limited, a company incorporated under the provisions of the Canada Corporations Act, is a wholly-owned subsidiary of Northern Natural Gas Company of Omaha, Nebraska. In an application dated 4 May 1979, made jointly with TransCanada and Pan-Alberta, Consolidated applied for a licence to export gas at a point on the international boundary near Emerson, Manitoba or Monchy, Saskatchewan. The gas to be exported at Emerson would be transported from Alberta to the border by TransCanada, while the gas to be exported at Monchy would be carried by the Foothills (Sask.) pipeline.

The Board issued Licence GL-61 in December 1979 to Consolidated, authorizing the export at Emerson of a total of 11 373 600 000 cubic metres of natural gas during the period 1 November 1980 to 31 October 1987, as follows:

Period	Daily (cubic metres)	Annual (cubic metres)
1 Nov 80 - 31 Oct 84	5 665 600	2 067 900 000
1 Nov 84 - 31 Oct 85	4 249 200	1 551 000 000
1 Nov 85 - 31 Oct 86	2 832 800	1 034 000 000
1 Nov 86 - 31 Oct 87	1 416 400	517 000 000

The Board considered including in Licence GL-61 authorization to export at Monchy as well as Emerson, but was concerned about the effect a transference of exports from Emerson to Monchy would have on the TransCanada system if construction of the prebuilt facilities of Foothills were delayed. As a transfer of gas volumes from TransCanada to Foothills (Sask.) would have the effect of vacating capacity in the TCPL system, the Board wished to be assured that the amount of spare capacity so created would not be so large as to have a significant impact on TransCanada's cost of service. The Board found:(1)

> "Accordingly, in light of the uncertainty concerning the impact of the switch of Consolidated's gas from TransCanada to Foothills, the Board is not prepared to authorize an automatic change of export point. Any subsequent application for change of point of export from Emerson to Monchy should be supported by evidence that the switching of its gas from TransCanada to Foothills will not cause a large dislocation on the TCPL system."

(1) November 1979 Decision, p. 9-27

CHAPTER C-2

THE APPLICATION

Consolidated Natural Gas Limited applied, in an application dated 26 February 1980, for an amendment to Licence GL-61, to have Monchy, Saskatchewan added as an authorized export point. Consolidated conditioned its application on a similar amendment being made to Licence GL-56, held by ProGas Limited, and proposed that the total volume of gas that could be exported at Monchy, Saskatchewan under Licences GL-56 and GL-61, in sum together, be limited to the following annual volumes:

Period	Annual Volume (Cubic Metres)
1 Nov 81 - 31 Oct 82	1 020 000 000
1 Nov 82 - 31 Oct 83	2 950 000 000
1 Nov 83 - 31 Oct 84	2 950 000 000
1 Nov 84 - 31 Oct 85	2 950 000 000
1 Nov 85 - 31 Oct 86	2 584 000 000
1 Nov 86 - 31 Oct 87	1 292 000 000

Notwithstanding these maximum annual volumes, Consolidated sought to limit the total volume to be exported at Monchy under the two licences to 12 747 500 000 cubic metres, 40 percent of which would be by Consolidated under Licence GL-61, and the other 60 percent by ProGas under Licence GL-56.

During the course of the hearing, Consolidated amended its application by increasing the volume to be exported at Monchy in the first year to 1 590 000 000 cubic metres, but without increasing the total of 12 747 500 000 cubic metres to be exported during the six-year export period.

CHAPTER C-3

EVIDENCE AND INTERVENTIONS

In its application, Consolidated referred to the Board's Report of March 1980, "Findings, Foothills Pipe Lines (Yukon) Ltd." On page 22 of that Report, the Board found:

> "4. The difference between the required throughput of the Eastern Leg of 57 987 100 000 m^3 (2,047 Bcf) and the already issued licence of Pan-Alberta for 37 324 800 000 m^3 (1,318 Bcf), plus the applied for firm licence of 7 914 800 000 m^3 (279 Bcf), is 12 747 500 000 m^3 (450 Bcf).
>
> Therefore, the Board finds that the minimum conditions of financeability would appear to require the transfer of at least 12 747 500 000 m^3 (450 Bcf), from already licensed volumes now dedicated to other pipeline systems, to the Eastern Leg, i.e., the Northern Border and Foothills (Sask.) pipelines. The volumes of gas currently licensed for export and suggested by Foothills (Yukon) for transfer to the Eastern Leg to make up the 12 747 500 000 m^3 (450 Bcf) in order to make the pipeline financeable were those of ProGas and Consolidated."

Consolidated emphasized that it was not requesting to have fixed volumes specified for export under Licence GL-61 at each of the two export points of Emerson and Monchy. Rather, it wanted to have the right to export at either of the two export points. In that regard, it conceded that as such permission implied no obligation to export any specific volumes at Monchy, there was no need to condition the addition of Monchy in Licence GL-61 to a similar change being made to Licence GL-56 issued to ProGas Limited. Consolidated added, however, that it would not transfer any gas to the Foothills (Sask.) pipeline unless ProGas also transferred gas in the amounts proposed. In that regard, ProGas stated that it had not applied for amendments to be made to its Licence GL-56, to add Monchy as on additional export point, because the arrangements between its United States customers and the Northern Border pipeline had not been completed, but that it intended to do so as soon as such arrangements had been finalized.

With respect to the volumes to be shipped over the Foothills (Sask.) facilities, Consolidated noted that the 40 - 60 split of the total volume of 12 747 500 000 cubic metres to be exported at Monchy under the two licences had been established on the basis of transferring

approximately 50 percent of the volumes authorized for export at Emerson under each of the licences. Consolidated added, however, that the 40 - 60 split would apply only to the total volume, as it believed the share of deliveries in any one year could vary between the two licences because of certain delivery and contractual matters.

The central issue before the Board was the question of the potential impact a transference of the Consolidated volumes could have on the TransCanada system. In this regard, the Board noted its concern on page 9-26 of the November 1979 Report, finding:

> "The proposed switch of Consolidated's gas from TransCanada to Foothills could... serve to relieve the early need for new facilities additions on the TCPL system if it occurs in the relatively near future. If the construction of the Foothills facilities is delayed, however, therefore requiring the expansion of TransCanada's system to provide continued capacity for the Consolidated gas, it may be desirable to continue the movement of the Consolidated gas in the TCPL system until such time as other requirements need the capacity that had been provided to accommodate Consolidated. At that time, Consolidated could switch to Foothills."

Consolidated and TransCanada submitted evidence to show that if the Canadian and United States pipelines which together would comprise the Eastern Leg of the prebuilt facilities were in service as scheduled by the end of 1981, the proposed volumes could be transferred from Emerson to Monchy without any impact, or dislocation, to TransCanada. Indeed, the evidence indicated that TransCanada intended to increase its system capacity to an annual throughput capability of 39 375 655 000 cubic metres during 1980. By the beginning of the 1981/82 delivery year, TransCanada's delivery obligations would likely exceed that amount, but, by shipping approximately 850 000 000 cubic metres though the Foothills system, it would be able to meet all of its delivery obligations. The volumes proposed to be transferred were those of Consolidated and ProGas. Accordingly, the transfer of these volumes would assist TransCanada,

rather than cause a dislocation. The evidence indicated that if all regulatory approvals were in-place by 1 May 1980, the Eastern Leg should be in operation by the end of 1981.

Evidence was also adduced on the impact of a delay in the in-service date of the Eastern Leg, whereby deliveries into the Foothills system would be set back into 1982. TransCanada stated that, to meet projected delivery obligations in these circumstances, it would have to add additional facilities with a capacity of 850 000 000 cubic metres per day. If such extra capacity were added, then later, when the Eastern Leg came into service, the Consolidated and ProGas volumes were transferred to Foothills, vacated capacity in some sections of the TransCanada system could reach an annual level of 2 407 864 000 cubic metres in the 1982/83 delivery year. It was the view of TransCanada that this amount was well within the amount of spare capacity which the Board indicated in 1977 should be maintained in the TCPL system to provide a degree of operational flexibility. Thus the transfer of the Consolidated and ProGas volumes would not, in these circumstances, cause undue dislocation on the TCPL system.

No intervenor opposed the Consolidated application; TransCanada, Consumers' Gas, Dome, ANB, Foothills (Yukon), Northern Border, Northwest Alaskan, and United all supported the application.

TransCanada urged the Board to use Section 17(2) of the Act to add Monchy as an alternate delivery point to the ProGas licence. In TransCanada's view such an action would not prejudice ProGas and would not derogate from the rights ProGas has and which are contained in the ProGas licence.

Foothills argued that the Board should amend the ProGas licence, by adding Monchy as a delivery point, without a hearing and without further reference to ProGas. In Foothills' opinion, such an amendment would have the effect of giving ProGas permission to export at Monchy without any concomitant obligation.

CHAPTER C-4

VIEWS OF THE BOARD

The Board notes the findings with respect to the minimum conditions for the financeability of the Foothills (Yukon) prebuilt facilities (contained in its March 1980 Report) which identified, in respect to the minimum level of assured throughput required for the Eastern Leg, a requirement for 12 747 500 000 cubic metres to be transferred from other systems, in addition to the volumes authorized for export by Pan-Alberta under Licence GL-58, plus the volumes applied for by Pan-Alberta in its applications of 12 February 1980. The Board finds that the transference of the Consolidated volumes from the TransCanada system to the Foothills system, in the manner proposed by Consolidated, would in conjunction with the transference of the ProGas volumes, achieve that objective.

The Board has considered the evidence with respect to the amount of vacated capacity in the TransCanada system that might result if the proposed volumes were exported at Monchy instead of Emerson. The Board is satisfied that, even if construction of the Eastern Leg facilities were delayed, and additional facilities were added by TransCanada to carry the incremental, or growth, volumes for the 1981/82 delivery year, the vacated capacity that would occur when the proposed volumes were transferred to Foothills, when that system came into service, would not cause undue dislocation on the TransCanada system. However, the Board believes that, as an added level of assurance that undue dislocation will not occur, it should specify maximum volumes in the amendment to be made to the Licence GL-61, to serve as a ceiling on the volume of gas that could be transferred in any one year.

With respect to the volumes to be transferred from the TransCanada pipeline system to the Foothills system, the Board is aware that the contractual arrangements necessary between the various parties concerned have yet to be completed. The Board also recognizes that, because the in-service date of the Eastern Leg facilities is not known at this time, there is a need to provide some flexibility in the determination of annual volumes to be transferred.

The Board does not consider the question of whether or not ProGas applies for a similar amendment to its licence to be an issue relevant to its disposition of the Consolidated application. The addition of the Monchy delivery point is permissive and imposes no obligation upon Consolidated.

With regard to the arguments of TransCanada and Foothills, that the Board should amend the ProGas Licence GL-56 under the powers of section 17(2) of the National Energy Board Act, the Board notes that ProGas has stated its intention to apply for an amendment to its licence in due course. Further, the Board would not amend a licence in the manner proposed without first giving the licensee the opportunity to make representations on the matter.

CHAPTER C-5

DECISION

Having considered all of the evidence and argument presented to it with respect to the application of Consolidated for the addition of Monchy, Saskatchewan as an authorized point of export in Licence GL-61, and having taken into account all matters that appear to it to be relevant, the Board is satisfied that the granting of permission to Consolidated to export a portion of the natural gas authorized for export under Licence GL-61 at Monchy via the prebuilt Eastern Leg facilities of Foothills is in the public interest. The Board will specify maximum annual and term volumes that may be exported at Monchy over the period of exports approved under that licence, as follows:

a. For the six year period 1 Nov 81 to 31 Oct 87, the amount of gas that may be exported at Monchy, Saskatchewan shall not exceed 5 099 000 000 cubic metres; and

b. The amount of gas that may be exported at Monchy, Saskatchewan in any twelve month period shall not exceed, for the period specified:

Period	Annual Maximum (cubic metres)
1 Nov 81 - 31 Oct 82	636 000 000
1 Nov 82 - 31 Oct 83	1 180 000 000
1 Nov 83 - 31 Oct 84	1 180 000 000
1 Nov 84 - 31 Oct 85	1 180 000 000
1 Nov 85 - 31 Oct 86	1 034 000 000
1 Nov 86 - 31 Oct 87	517 000 000

Accordingly, the Board is prepared, subject to the approval of the Governor in Council, to issue an Order to amend Licence GL-61 in the manner shown at Appendix IV.

R.F. Brooks
Presiding Member

L.M. Thur
Member

J.R. Jenkins
Member

NATIONAL ENERGY BOARD — OFFICE NATIONAL DE L'ÉNERGIE

CANADA

ORDER NO. GH-1-80

IN THE MATTER OF the National Energy Board Act and the Regulations made thereunder;

AND IN THE MATTER OF applications made by Pan-Alberta Gas Ltd. for licences under Part VI of the National Energy Board Act for the exportation of natural gas to the United States of America, filed with the Board under file number 1537-P23-4;

B E F O R E the Board on Thursday, the 14th day of February, 1980.

UPON Pan-Alberta Gas Ltd., hereinafter referred to as "Pan-Alberta", having filed with the Board two applications dated the 12th day of February, 1980, for licences under Part VI of the National Energy Board Act, authorizing the export of natural gas at points on the international boundary between Canada and the United States of America near Kingsgate, in the Province of British Columbia, and near Monchy, in the Province of Saskatchewan;

IT IS ORDERED THAT:

1. The Applications shall be heard together at a public hearing in the Hearing Room of the National Energy Board, 473 Albert Street, in the City of Ottawa, in the Province of Ontario, commencing on Tuesday, the 18th day of March, 1980, at 9:30 a.m. local time. The proceedings will be conducted in either of the two official languages and simultaneous interpretation will be provided should a party to the proceedings request such facilities in his intervention.

2. Pan-Alberta shall arrange to have the Notice of Hearing in the form prescribed by the Board, as set forth in the Notice attached hereto and which forms part of this Order, published not later than the 22nd day of February, 1980, or as soon thereafter as possible, in one issue each of The Colonist, in the City of Victoria, The Sun, in the City of Vancouver, both in the Province of British Columbia; The Herald, in the City of Calgary, The Journal, in the City of Edmonton, both in the Province of Alberta; The Leader Post, in the City of Regina, and The Star Phoenix, in the City of Saskatoon, both in the Province of Saskatchewan; The Free Press, in the City of Winnipeg, in the Province of Manitoba; The Citizen and Le Droit, in the City of Ottawa, The Globe and Mail and The Financial Post, in the City of Toronto, all in the Province of Ontario; Le Devoir, The Gazette, La Presse, and The Financial Times of Canada, in the City of Montreal, Le Soleil, in the City of Quebec, all in the Province of Quebec; The Telegraph Journal, in the City of Saint John, and The Gleaner, in the City of Fredericton,

. . . /2

both in the Province of New Brunswick; The Chronicle Herald, in the City of Halifax, in the Province of Nova Scotia; The Guardian, in the City of Charlottetown, in the Province of Prince Edward Island; The Telegram, in the City of St. John's, in the Province of Newfoundland; The Star, in the Town of Whitehorse, in the Yukon Territories; The News of the North, in the Town of Yellowknife, in the Northwest Territories; and, as soon as possible, in the Canada Gazette.

3. Notice of the said hearing shall forthwith be given by Pan-Alberta, by service of a true copy of this Order, together with a copy of the Applications filed, upon the Attorneys-General of all of the Provinces of Canada, The Energy Resources Conservation Board of Alberta, The Ontario Energy Board, La Régie de l'électricité et du gaz du Québec, Alberta and Southern Gas Co. Ltd., Canadian-Montana Pipe Line Company, Columbia Gas Development of Canada Ltd., Consolidated Natural Gas Limited, Niagara Gas Transmission Limited, ProGas Limited, Sulpetro Limited, TransCanada PipeLines Limited, and Westcoast Transmission Company Limited.

4. Any respondent or intervenor intending to oppose or intervene in the hearing shall file with the Secretary of the Board, on or before the 7th day of March, 1980, thirty-five (35) copies of a written statement, in either of the two official languages, containing his reply or submission, together with any supporting information, particulars, or documents, which shall contain a concise statement of the facts from which the nature of the respondent's or intervenor's interest in the proceedings may be determined; which shall be endorsed with the name and address of the respondent or intervenor, or his solicitor to whom communications may be sent; which may admit or deny any or all of the facts alleged in the Applications; and which shall state in which of the two official languages the party wishes to be heard. Any respondent or intervenor shall, in addition, serve on or before the 7th day of March, 1980, three (3) copies of his reply or submission and supporting information upon the Applicant and one (1) copy upon each of the parties named in paragraph 3 of this Order and shall file proof of service thereof with the Board at the opening of the hearing.

5. Leave be and it is hereby granted for such evidence taken in other hearings before the Board or before the Energy Resources Conservation Board of Alberta, and for such reports, findings, or orders of the Board or of the Energy Resources Conservation Board of Alberta made in respect thereof, as the Applicant may deem necessary and the Board permit, to be received in evidence at the hearing of these Applications.

6. Any interested party may examine a copy of the applications at the office of:

. . . /3

National Energy Board
Trebla Building
473 Albert Street
Ottawa, Ontario
K1A 0E5

or at the office of the Applicant at the following address:

Pan-Alberta Gas Ltd.
350, 202 6th Avenue S.W.
Calgary, Alberta
T2P 2R9

DATED at the City of Ottawa, in the Province of Ontario, this 14th day of February, 1980.

NATIONAL ENERGY BOARD

B. H. Whittle

Brian H. Whittle
Secretary

NATIONAL ENERGY BOARD
NOTICE OF HEARING

TAKE NOTICE that, pursuant to the National Energy Board Act and Regulations made thereunder, the Board has ordered a hearing to be held in the Hearing Room of the National Energy Board, Trebla Building, 473 Albert Street, Ottawa, Ontario, on Tuesday, 18 March 1980, commencing at the hour of 9:30 a.m. local time, to hear the applications of Pan-Alberta Gas Ltd. for licences under Part VI of the National Energy Board Act to export natural gas to the United States of America. Such proceedings will be conducted in either of the two official languages and simultaneous interpretation will be provided should a party to the proceedings request such facilities in his intervention.

AND THE BOARD HAS FURTHER ORDERED THAT:

1. Any respondent or intervenor intending to oppose or intervene in the hearing shall file with the Secretary of the Board, on or before 7 March 1980, thirty-five (35) copies of a written statement, in either of the two official languages, containing his reply or submission, together with any supporting information, particulars, or documents, which shall contain a concise statement of the facts from which the nature of the respondent's or intervenor's interest in the proceedings may be determined; which shall be endorsed with the name and address of the respondent or intervenor, or his solicitor to whom communications may be sent; which may admit or deny any or all of the facts alleged in the Applications; and which shall state in which of the two official languages the party wishes to be heard. Any respondent or intervenor shall, in addition, serve on or before 7 March 1980, three (3) copies of his reply or submission and supporting information upon the Applicant and one (1) copy upon the Attorneys-General of all the Provinces of Canada, The Energy Resources Conservation Board of Alberta, The Ontario Energy Board, La Régie de l'électricité et du gaz du Québec, Alberta and Southern Gas Co. Ltd., Canadian-Montana Pipe Line Company, Columbia Gas Development of Canada Ltd., Consolidated Natural Gas Limited, Niagara Gas Transmission Limited, ProGas Limited, Sulpetro Limited, TransCanada PipeLines Limited, and Westcoast Transmission Company Limited and shall file proof of service thereof with the Board at the opening of the hearing.

2. Any interested party may examine a copy of the applications at the office of:

National Energy Board
Trebla Building
473 Albert Street
Ottawa, Ontario
K1A 0E5

. . . /2

or at the office of the Applicant at the following address:

Pan-Alberta Gas Ltd.
350, 202 6th Avenue S.W.
Calgary, Alberta
T2P 2R9

DATED at the City of Ottawa, in the Province of Ontario, this 14th day of February, 1980.

NATIONAL ENERGY BOARD

Brian H. Whittle
Secretary

NATIONAL ENERGY BOARD — CANADA — OFFICE NATIONAL DE L'ÉNERGIE

ORDER NO. GH-3-80

IN THE MATTER OF the National Energy Board Act and the Regulations made thereunder;

AND IN THE MATTER OF an application made by Consolidated Natural Gas Limited under section 17(2) of the National Energy Board Act for an amendment to its Licence No. GL-61, filed with the Board under File No. 1537-C29-1.

B E F O R E the Board on Tuesday, the 4th day of March, 1980.

UPON Consolidated Natural Gas Limited, hereinafter referred to as "Consolidated", having filed with the Board an application dated the 26th day of February, 1980, for an order under section 17(2) of the National Energy Board Act amending Licence No. GL-61 by adding Monchy, Saskatchewan, as an additional export point;

IT IS HEREBY ORDERED THAT:

1. The Application shall be heard together with the applications of Pan-Alberta Gas Ltd. set down pursuant to Order No. GH-1-80, at a public hearing in the Hearing Room of the National Energy Board, 473 Albert Street, in the City of Ottawa, in the Province of Ontario, commencing on Tuesday, the 18th day of March, 1980, at 9:30 a.m. local time. The proceedings will be conducted in either of the two official languages and simultaneous interpretation will be provided should a party to the proceedings request such facilities in his intervention.

2. Consolidated shall arrange to have the Notice of Hearing in the form prescribed by the Board, as set forth in the notice attached hereto and which forms part of this Order, published as soon as possible in one issue each of The Sun, in the City of Vancouver, in the Province of British Columbia; The Herald, in the City of Calgary, in the Province of Alberta; The Globe and Mail, in the City of Toronto, in the Province of Ontario; Le Devoir, in the City of Montreal, in the Province of Quebec; and in the Canada Gazette.

3. Notice of the said hearing shall forthwith be given by Consolidated by service of a true copy of this Order, together with a copy of the Application filed, upon the Attorneys General of all the provinces of Canada, The Energy Resources Conservation Board of Alberta, The Ontario Energy Board, La Régie de l'électricité et du gaz du Québec, Alberta and Southern Gas Co. Ltd., Canadian-Montana Pipe Line Company, Columbia Gas Development of Canada Ltd., Niagara Gas Transmission Limited, Pan-Alberta Gas Ltd., ProGas Limited, Sulpetro Limited, TransCanada PipeLines Limited, and Westcoast Transmission Company Limited.

4. Any respondent or intervenor intending to oppose or intervene in the hearing shall file with the Secretary of the Board, on or before the 14th day of March, 1980, thirty-five (35) copies of a written statement, in either of the two official languages, containing his reply or submission, together with any supporting information, particulars, or documents, which shall contain a concise statement of the facts from which the nature of the respondent's or intervenor's interest in the proceedings may be determined; which shall be endorsed with the name and address of the respondent or intervenor, or his solicitor to whom communications may be sent; which may admit or deny any or all of the facts alleged in the Applications; and which shall state in which of the two official languages the party wishes to be heard. Any respondent or intervenor shall, in addition, serve on or before the 14th day of March, 1980, three (3) copies of his reply or submission and supporting information upon the Applicant and one (1) copy upon each of the parties named in paragraph 3 of this Order and shall file proof of service thereof with the Board at the opening of the hearing.

5. Leave be and it is hereby granted for such evidence taken in other hearings before the Board or before the Energy Resources Conservation Board of Alberta, and for such reports, findings, or orders of the Board or of the Energy Resources Conservation Board of Alberta made in respect thereof, as the Applicant may deem necessary and the Board permit, to be received in evidence at the hearing of these Applications.

6. Any interested party may examine a copy of the application at the office of:

National Energy Board
Trebla Building
473 Albert Street
Ottawa, Ontario
K1A 0E5

or at the office of Consolidated at the following address:

Consolidated Natural Gas Limited
1300 Elvedon House
717 - 7th Avenue S.W.
Calgary, Alberta
T2P 0Z3.

DATED at the City of Ottawa, in the Province of Ontario, this 4th day of March, 1980.

NATIONAL ENERGY BOARD

B.H. Whittle

Brian H. Whittle
Secretary

NATIONAL ENERGY BOARD
NOTICE OF HEARING

TAKE NOTICE that, pursuant to the National Energy Board Act and Regulations made thereunder, the National Energy Board has ordered a hearing to be held in the Hearing Room of the National Energy Board, Trebla Building, 473 Albert Street, Ottawa, Ontario, on Tuesday, 18 March 1980, commencing at the hour of 9:30 a.m. local time, to hear the application of Consolidated Natural Gas Limited for an order under section 17(2) of the National Energy Board Act amending Licence No. GL-61 by adding Monchy, Saskatchewan, as an additional export point. Such proceedings will be conducted in either of the two official languages and simultaneous interpretation will be provided should a party to the proceedings request such facilities in his intervention.

AND THE BOARD HAS FURTHER ORDERED THAT:

1. Any respondent or intervenor intending to oppose or intervene in the hearing shall file with the Secretary of the Board, on or before the 14th day of March, 1980, thirty-five (35) copies of a written statement, in either of the two official languages, containing his reply or submission, together with any supporting information, particulars, or documents, which shall contain a concise statement of the facts from which the nature of the respondent's or intervenor's interest in the proceedings may be determined; which shall be endorsed with the name and address of the respondent or intervenor, or his solicitor to whom communications may be sent; which may admit or deny any or all of the facts alleged in the Applications; and which shall state in which of the two official languages the party wishes to be heard. Any respondent or intervenor shall, in addition, serve on or before the 14th day of March, 1980, three (3) copies of his reply or submission and supporting information upon the Applicant and one (1) copy upon each of the parties named in paragraph 3 of this Order and shall file proof of service thereof with the Board at the opening of the hearing.

2. Any interested party may examine a copy of the application at the office of:

National Energy Board
Trebla Building
473 Albert Street
Ottawa, Ontario
K1A 0E5

or at the office of Consolidated at the following address:

Consolidated Natural Gas Limited
1300 Elvedon House
717 - 7th Avenue S.W.
Calgary, Alberta
T2P 0Z3.

DATED at the City of Ottawa, in the Province of Ontario, this 4th day of March, 1980.

NATIONAL ENERGY BOARD

Brian H. Whittle
Secretary

FORM OF THE PROPOSED LICENCES AND AMENDING ORDERS FOR PAN-ALBERTA GAS LTD.

In accordance with decisions reached in this report, the Board will, subject to the approval of the Governor in Council, issue the following licences and orders to Pan-Alberta Gas Ltd. containing the respective terms and conditions indicated:

A. An order amending Licence No. GL-58 by:

(1) revoking condition 1 therefrom and substituting therefor the following:

"1. The term of this licence shall commence on the 1st day of November, 1981, and end on the 31st day of October, 1988."

(2) revoking paragraphs (d) and (e) of condition 2 therefrom and substituting therefor the following paragraphs:

"(d) for the period commencing on the 1st day of November, 1986, and ending on the 31st day of October, 1987, 6 232 100 cubic metres in any one day, or during the period, 2 073 600 000 cubic metres plus an "additional" quantity of gas, subject to condition 8, equal to the difference between the quantity of gas authorized for export under paragraph (a) during the twelve month period ending the 31st day of October, 1982, and the quantity of gas actually exported under this licence during that twelve month period, up to a maximum quantity of 13 605 100 cubic metres in any one day or 4 526 800 000 cubic metres during the period.

(e) for the "extended" period commencing on the 1st day of November, 1987, and ending on the 31st day of October, 1988, and subject to condition 8, 24 928 500 cubic metres in any one day, or a quantity of gas during the period equal to the difference between the quantity of gas authorized for export under paragraph (a) during the twelve month period ending the 31st day of October, 1982, and the quantity of gas actually exported under this licence during that twelve month period, less the quantity of such gas exported during the twelve month period ending on the 31st day of October, 1987.

(f) 37 324 800 000 cubic metres during the term of this licence."

(3) adding the following condition:

"8. the additional quantity of gas specified in condition 2 paragraph (d) and the gas authorized for export during the extended period, condition 2 paragraph (e), shall be subject to having the quantity authorized for export during the respective periods reduced by the Board should deliverability be insufficient to meet the Canadian requirements and authorized exports."

B. An order amending Licence No. GL-59 by:

(1) revoking condition 1 therefrom and substituting therefor the following:

"1. The term of this licence shall commence on the 1st day of November, 1980, and end on the 31st day of October, 1988."

(2) adding the following paragraph to condition 2:

"(f) for the "extended" period commencing on the 1st day of November, 1987, and ending on the 31st day of October, 1988, and subject to condition 8, 7 478 600 cubic metres in any one day, or a quantity of gas during the period equal to the difference between the quantity of gas authorized under paragraph (a) for export during the twelve month period ending on the 31st day of October, 1981, and the quantity of gas actually exported under this licence during that twelve month period."

(3) revoking condition 5 therefrom and substituting therefor the following:

"5. Gas exported under the authority of and in accordance with this licence shall be delivered to the point of export near Kingsgate, in the Province of British Columbia, through the pipeline systems of Foothills Pipe Lines (Alta.) Ltd., Foothills Pipe Lines (South B.C.) Ltd., Alberta Gas Trunk Line Company Limited and Alberta Natural Gas Company Ltd."

(4) adding the following condition:

"8. The extended period of the licence (see condition 2 paragraph (f)) shall be subject to having the quantity authorized for export during the period reduced by the Board should deliverability be insufficient to meet the Canadian requirements and authorized exports."

C. A licence for the exportation of gas at a point near Monchy, Saskatchewan with the following terms and conditions:

1. The term of this licence shall commence on the 1st day of November, 1984, and end on the 31st day of October, 1987.

2. The quantity of gas that may be exported under the authority of and in accordance with this licence shall not exceed:

(a) for the period commencing on the 1st day of November, 1984, and ending on the 31st day of October, 1985, 6 232 100 cubic metres in any one day, or 2 073 600 000 cubic metres in the period;

(b) for the period commencing on the 1st day of November, 1985, and ending on the 31st day of October, 1986, 12 464 200 cubic metres in any one day, or 4 147 200 000 cubic metres in the period;

(c) for the period commencing on the 1st day of November, 1986, and ending on the 31st day of October, 1987, 5 091 300 cubic metres in any one day, or 1 694 000 000 cubic metres in the period, or

(d) 7 914 800 000 cubic metres during the term of this licence.

3. As a tolerance, the amount the Licensee may export under this licence may, in any 24-hour period, exceed the daily limitation imposed in condition 2 by two percent of such amount.

4.(1) The price to be received for gas exported in each month comprised in the term of this licence, including all transmission costs of moving gas to the international bourndary line between Canada and the United States of America, shall be not greater than and not less than the Canadian dollar equivalent for each such month of $4.17 in United States currency per gigajoule of gross heating value.

(2) The Canadian dollar equivalent for each month comprised in the terms of this licence shall be an amount in Canadian dollars equal to the price in United States dollars specified in subcondition (1), converted to Canadian dollars at the rate of exchange for each such month, which rate of exchange shall be the average of the noon spot exchange rates for the United States dollar in terms of Canadian dollars in each such month, as published by the Bank of Canada.

5. Gas exported under the authority of and in accordance with this licence shall be delivered to the point of export near Monchy, in the Province of Saskatchewan, through the pipeline systems of Foothills Pipe Lines (Alta.) Ltd. and Foothills Pipe Lines (Sask.) Ltd.

6. The quantity, relative density and gross heating value of all gas exported under the authority of and in accordance with this licence shall be measured by the Licensee in a manner approved by the Board.

7. The Licensee shall, within 15 days of the end of each month comprised in the term of this licence, file with the Board a report setting forth the daily quantities, relative density and gross heating value of the gas exported hereunder.

D. A Licence for the exportation of gas at a point near Kingsgate, British Columbia with the following terms and conditions:

1. The term of this licence shall commence on the 1st day of November, 1980, and end on the 31st day of October, 1987.

2. The quantity of gas that may be exported under the authority of and in accordance with this licence shall not exceed:

(a) for the period commencing on the 1st day of November, 1980 and ending on the 31st day of October, 1983, 931 500 cubic metres in any one day, or 340 000 000 cubic metres in any consecutive twelve month period ending on the 31st day of October; the total quantity of gas exported under this Licence during this period shall be taken from and reduce by the same amount the quantity of gas authorized to be exported during the balance of the term of this licence;

(b) for the period commencing on the 1st day of November, 1983, and ending on the 31st day of October, 1984, 1 869 700 cubic metres in any one day or 622 100 000 cubic metres in the period;

(c) for the period commencing on the 1st day of November, 1984, and ending on the 31st day of October, 1985, 3 739 400 cubic metres in any one day, or 1 244 200 000 cubic metres in the period,

(d) for the period commencing on the 1st day of November, 1985, and ending on the 31st day of October, 1986, 2 528 300 cubic metres in any one day, or 841 200 000 cubic metres in the period, plus an additional quantity of gas subject to condition 3 of 3 080 700 cubic metres in any one day, or 1 025 000 000 cubic metres in the period,

(e) for the period commencing on the 1st day of November, 1986, and ending on the 31st day of October, 1987, 5 786 400 cubic metres in any one day, or 1 925 300 000 cubic metres in the period, plus an additional quantity of gas subject to condition 3 of 1 692 200 cubic metres in any one day, or 563 000 000 cubic metres in the period;

(f) 6 220 800 000 cubic metres during the term of this licence.

3. The additional quantities of gas authorized for export during the periods specified in paragraphs (d) and (e) of condition 2 shall be subject to having the quantities authorized for export reduced by the Board should deliverability be insufficient to meet Canadian requirements and authorized exports.

4. As a tolerance, the amount the Licensee may export under this licence may, in any 24-hour period, exceed the daily limitation imposed in condition 2 by two percent of such amount.

5.(1) The price to be received for gas exported in each month comprised in the term of this licence, including all transmission costs of moving gas to the international boundary line between Canada and the United States of America, shall be not greater than and not less than the Canadian dollar equivalent for each such month of $4.17 in United States currency per gigajoule of gross heating value.

(2) The Canadian dollar equivalent for each month comprised in the term of this licence shall be an amount in Canadian dollars equal to the price in United States dollars specified in subcondition (1), converted to Canadian dollars at the rate of exchange for each such month, which rate of exchange shall be the average of the noon spot exchange rates for the United States dollar in terms of Canadian dollars in each month, as published by the Bank of Canada.

6. Gas exported under the authority of and in accordance with this licence shall be delivered to the point of export near Kingsgate, in the Province of British Columbia, through the pipeline systems of Foothills Pipe Lines (Alta.) Ltd., Foothills Pipe Lines (South B.C.) Ltd., Alberta Gas Trunk Line Company Limited and Alberta Natural Gas Company Ltd.

7. The quantity, relative density and gross heating value of all gas exported under the authority of and in accordance with this licence shall be measured by the Licensee in a manner approved by the Board.

8. The Licensee shall, within 15 days of the end of each month comprised in the term of this licence, file with the Board a report setting forth the daily quantities, relative density and gross heating value of the gas exported hereunder.

FORM OF THE PROPOSED AMENDING ORDER
FOR CONSOLIDATED NATURAL GAS LIMITED

In accordance with the decisions reached in this report, the Board will, subject to the approval of the Governor in Council, issue an order to Consolidated Natural Gas Limited as follows:

An Order amending Licence No. GL-61 as follows:

1. by deleting the phrase "at a place on the international boundary line between Canada and the United States of America near Emerson, in the Province of Manitoba" where it occurs therein and substituting therefor the phrase "at places on the international boundary line between Canada and the United States of America near Monchy, in the Province of Saskatchewan and near Emerson, in the Province of Manitoba".

2. by adding the following condition:

8. Of the total quantity of gas authorized for export during each of the periods specified in condition 2, the quantity of gas that may be exported near Monchy, Saskatchewan, shall not exceed:

(a) for the period commencing on the 1st day of November, 1981, and ending on the 31st day of October, 1982, 1 742 500 cubic metres in any one day, or 636 000 000 cubic metres in the period;

(b) for the period commencing on the 1st day of November, 1982, and ending on the 31st day of October, 1985, 3 232 900 cubic metres in any one day, or 1 180 000 000 cubic metres in any consecutive twelve-month period ending on the 31st day of October;

(c) for the period commencing on the 1st day of November, 1985, and ending on the 31st day of October, 1986, 2 832 800 cubic metres in any one day, or 1 034 000 000 cubic metres in the period;

(d) for the period commencing on the 1st day of November, 1986, and ending on the 31st day of October, 1987, 1 416 400 cubic metres in any one day, or 517 000 000 cubic metres in the period, or

(e) for the six year period commencing on the 1st day of November, 1981, and ending on the 31st day of October, 1987, 5 099 000 000 cubic metres in the period."